SECRET

OCR-0725-60

8 January 1960

MEMORANDUM FOR: Deputy Director (Plans)

THROUGH : Acting Chief, DPD

SUBJECT : Evaluation of ITEK Proposal For A Follow-On High Acuity Camera

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1. After review of the above referenced proposal, made to Lockheed, [redacted] visited ITEK on 18 December 1959 to obtain additional information to aid in evaluation of the proposal. The proposal is for improvement in the C-prime camera for CORONA. If the proposal is accepted, ITEK then would start delivery of the improved C-prime camera with camera No. 4. Fairchild would deliver the first three (3) cameras in accordance with the present design. Although ITEK briefly discusses their new environmental test facility, it is not considered part of the proposal and it is understood that funding for the improved facilities are being accomplished by the Air Force under the E-5 portion of System 117L.

2. The proposal poses four (4) major improvements to the camera:

a. Structure
b. Continually rotating lens
c. No platen
d. Elimination of the skewed rollers

It is felt that greatest improvement in the camera is going to be achieved through the new structure shown in attachments one (1) and two (2). Without a doubt this improvement would eliminate many of the alignment problems and would reduce camera weight approximately four (4) pounds. The continually rotating lens, although a desirable feature, would probably be of value only with the present lens design. ITEK has indicated that there is great growth potential in this area and that new and better lenses could be easily installed. However, since the lens must be rotated on the node of emission, and since all lenses rotating in this manner must be mounted accurately at this point, it is questionable whether a different lens could be mounted in such a manner without considerable change in the camera structure. It should be pointed out, though, that such an installation can be operated at about 1/3 the power requirements with an ultimate savings in overall system weight.

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3. There is a question if the camera will operate satisfactorily and give the resolution desired without the camera platen. ITEK has achieved 110 lpm in mock-up tests at the ends as well as the center of the film format. Should the camera fail to operate satisfactorily without a platen, this would not be a serious problem since the present platen could be installed without much trouble.

4. Elimination of the skewed rollers is a most desirable feature and to accomplish this, ITEK proposes to twist the film 90°, as shown in attachment #3. Film has been operated in the illustrated mock-up satisfactorily, but the crown on the twisting rollers must be redesigned to insure proper tension across the face of the film. Should the crown rollers be improperly designed, this could be the cause of camera failure at altitude.

5. ITEK proposes to continue to use FCIC as a sub-contractor to supply parts and sub-assembly. Complete camera assembly and testing would be accomplished at ITEK's facility.

6. The design as proposed does offer several advantages, they are:

a. Reduction in weight
b. Simplicity
c. Less emulsion build up within the camera
d. Slower film speeds during film metering cycle
e. Elimination of the skewed rollers

However, there are several items on the debit side that seem to make proposed modifications questionable. They are:

a. It is questionable whether ITEK can complete design, fabricate and test in time to deliver first item on 15 June.

b. The problem of film twist between the output metering roller and guillotine and the take-up cassette had not been reviewed, and at the time of [redacted] visit no solution was in sight.

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c. Since the continually rotating lens, stove pipe, and film are mounted to a single shaft, this might cause a serious vibration problem during operation with a great loss in resolution.

Items B and C above can, without a doubt, be resolved but the effort and time required might effect ITEK's proposed delivery schedule.

7. The proposed modification outlined above would, without a doubt, result in a superior camera for CORONA and ITEK has indicated that increase in costs should not exceed [redacted] In view of this it is recommended

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that the prime contractor be given the responsibility to evaluate ITEK's proposal and approve the modification only if they can assure us that they will meet flight schedules as required, and at no additional cost other than that recommended above.

SIGNED

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Chief, Development Branch
DPD-OD/P

25X1 DPD-OD/P[redacted]
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Attachments:
Three pictures.